SYNTHESIS AND STUDY OF COORDINATION COMPOUNDS PALLADIUM (II) WITH DERIVATIVES 3-(2-PYRIDYL)-1,2,4-TRIAZOLE

The article is devoted to investigation of coordination compounds of palladium (II) with derivatives 3-(2-pyridyl)-1,2,4-triazole containing hydrophobic residues. We syntesised 6 ligands and 10 new coordination compounds. They were investigated by NMR-and IR-spectroscopy.

The synthesis of ligands based on thermal cyclization of amidrazons obtained by acylation of hydrazides with imidoesters. One of the features of 1,2,4-triazoles is that they can exist in three tautomeric forms. As a result we observe doubling and tripling of signals of protons in NMR-spectra of the corresponding compounds.

On the basis of obtained ligands we synthesized coordination compounds in the metal to ligand molar ratio 1 to 1 $Pd(HL)Cl_2$: $PdCl_2 \times 2CH_3CN + HL \Rightarrow Pd(HL)Cl_2$

If to compare NMR-spectra of obtained complex with non coordinated ligand there is no doubling of signal of the N-H triazole proton. This is due to stabilization of one tautomer form of ligand in coordination compound. It is necessary to highlight that signals of protons of pyridine and triazole fragments undergo low-field shift after complexation.

Coordination compounds with metal to ligand molar ratios 1 to 2 were synthesized according to scheme : $PdCl_2 \times 2CH_3CN + 2HL + 2NEt_3 \Rightarrow Pd(L)_2$

In NMR-spectra of these compounds the signal of NH proton of triazole disappeared. An interesting feature was a significant shift of the ortho-pyridine proton in a low-field area. This may be due to its closeness to the region of negative magnetic anisotropy, which is formed by the second triazole-cycle ligand.

In this work we were unable to synthesize coordination compounds in a metal to ligand molar ratio 1 to 1 when phenyl and proton where used as the substituent in the 5 position of triazole. This can be explained by higher acidity of the triazole proton in these compounds, compared to another ligands.

Key words: 1,2,4-Triazole, deprotonation, palladium.